

REMARKS

The present amendment is submitted in response to the Office Action dated June 23, 2003, which set a three-month period for response, making this amendment due by September 23, 2003.

Claims 1-10 are pending in this application.

In the Office Action, the drawings were objected to under 37 CFR 1.83(a) as not showing every feature of the invention specified in the claims. Claim 1 was objected to for an informality. Claims 1-5, 7, and 9 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,438,555 to Tsumuki et al. Claims 1-3 and 7-10 were further rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,620,454. Claims 1-5, 7, and 9 were rejected under 35 U.S.C. 102(b) as being anticipated by French Patent Document FR 806 791 A. Claim 6 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Tsumuki.

Turning first to the objections to the drawings and claim 1, claim 1 has been amended to change the objected-to term "nonpositive-engagement" to "force-locking engagement".

The claims were amended to replace the phrase "characterized in that" with "wherein". Claims 5 and 6 were amended to delete the narrower limitation, respectively. New claims 11 and 12 were added, which cover the narrower limitation of claims 5 and 6, respectively.

With regard to the substantive rejection of the claims, claim 1 has been amended to add the features of claims 3 and 9, which have been canceled, along with features of the invention described in the specification on page 2, lines 25-27.

The Applicants respectfully submit that claims 1, 2, 4-8, and 10-12 are patentable over the cited reference to Tsumuki. Tsumuki describes a shaft with a notch 5, which does not produce a force-locking, non-rotational connection with the ring 3. With the method of Tsumuki, first the ring 3 is slid on the shaft 2, and thereafter, a deformation is attached in the region of the notch 4 axially left and right near the ring, which wedges over the shaft in order to hold the ring. With such a method, the danger exists that the ring magnet can be damaged with subsequent prying off of the shaft, as described in the specification of the present application on page 1, lines 16-18.

With Tsumuki, likewise, it is not obvious to provide a deformation for force-locking, non-rotational connection of the shaft with the ring in a region of the inner face of the ring on the outer face of the shaft in order to slide the ring then subsequently over the deformation region. In this regard, also no suggestion is provided for the practitioner to impress the deformation for the force-locking, non-rotational connection before the actual mounting of the ring by means of impressing die. Since the deformations with Tsumuki are arranged outside of the region of the shaft, which is in contact with the inner surface of the ring, the deformations also are not disposed approximately centrally, that is, approximately in the middle of the inner face (axial).

The reference to Sugiuchi describes a shaft, on which ring-shaped components are disposed, which has a cutting edge on its inner face, which cuts in under deformation of the upper surface of the shaft into the same. With such a connection technique, the deformation regions are not impressed onto the shaft by means of an impressing die, but are cut in by means of the ring-shaped part. Also, the deformation regions for force-locking, non-rotational connection are not formed before the actual mounting of the ring, rather simultaneously with the mounting of the ring. In addition, the deformation regions are arranged on the axial edge regions in the area of the inner face and not approximately in the center of the inner face (axially). In addition, such a cutting ring method is not suited for the mounting of ring magnets onto a shaft, because with its mounting, it can be destroyed by the radial occurring forces. Thus, Sugiuchi does not render obvious the present invention, which impresses the deformation regions for force-locking, non-rotational connection before the actual mounting of the ring.

The French reference FR 806 791 shows a shaft, over whose entire length, three ridges 3 are formed, whereby the shaft has a generally triangular cross section. These ridges are not impressed by means of an impressing die, rather are formed by means of a rolling method in the axial direction. For attachment of the ring-shaped parts 5, these are shifted along the axis over the axial ridge until reaching their desired end positions. Thus, intense radial forces occur during the entire shifting process, which, with attachment of a ring magnet made of sinter material, can lead to damage of the same. Since the deformation

regions extend over the entire axial length of the shaft, these also are not arranged approximately centrally to the inner face of the ring.

The core of the present invention is to form directly therein a relatively small deformation region in the area of the inner face of the ring by means of a simple and cost-effective, manipulative die or impressing method, whereby the radial tension that occur with the mounting of the ring are very limited in time and location. In addition, the method of the French reference is not suited for the forming of a worm on a shaft, since based on the axial ridges over the entire axial length, no uniform worm threads can be formed on the upper surface of the shaft. Thus, the French reference also teaches away from the present invention.

Finally, a combination of the above references or the other documents cited in the Office Action do not render obvious the present invention, since none of these documents described or suggest forming at least two impressions approximately in the center of the inner face of the ring by means of an impressing die, which permit a force-locking, non-rotational connection between the ring and shaft, without damaging the ring.

For the reasons set forth above, the Applicants respectfully submit that claims 1-2, 4-8, and 10-12 are patentable over the cited references. The Applicants further request withdrawal of the rejections under 35 U.S.C. 102 and 103 and reconsideration of the claims as herein amended.

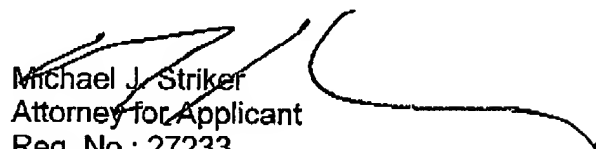
It has been noted that the Hahn et al document has not been initialed as considered in the PTO Form 1449 attached to the Office Action of June 23, 2003. This reference was also mentioned in the International Search Report. Since the

Examiner will in any event consider prior art mentioned in the International Search Report, it is believed that the duty of disclosure has been met.

In light of the foregoing arguments in support of patentability, the Applicants respectfully submit that this application stands in condition for allowance. Action to this end is courteously solicited.

Should the Examiner have any further comments or suggestions, the undersigned would very much welcome a telephone call in order to discuss appropriate claim language that will place the application into condition for allowance.

Respectfully submitted,



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